

REMARKS/ARGUMENTS

Favorable reconsideration of this application in view of the above amendments and the following remarks is respectfully requested.

Claims 1-20, 23-42 and 45 are pending in this application. By this amendment, Claims 1-20, 23-42 and 44 have been amended; and Claims 21, 22, 43 and 45-66 have been canceled. It is respectfully submitted that no new matter has been added.

In the outstanding Office Action Claims 1, 2, 6-14, 20, 23, 24, 28-35, 37, 42 and 44 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak et al. (U.S. Patent Application Publication No. 2002/0075904 A1, hereinafter Dabak) in view of Khayrallah et al. (U.S. Patent No. 6,320,919 B1, hereinafter Khayrallah); Claims 3-5 and 25-27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak in view of Khayrallah and further in view of Rafie et al. (U.S. Patent Application Publication No. 2002/0196844 A1, hereinafter Rafie); and Claims 15-19, 36 and 38-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak in view of Khayrallah as applied to Claim 11 above and further in view of Kingston et al. (U.S. Patent No. 6,373,910 B2, hereinafter Kingston).

The Abstract has been amended to improve the format and language thereof.

Claims 1, 23, and 44 recite “the packet data having fixed portions or fields and one or more variable portions or fields.” Claim 20 recites “a Bluetooth data receiver... comprising... a training sequence determiner to determine a training sequence using one or more variable data portions or fields of said data packet.” It is respectfully submitted that these features are neither disclosed by nor rendered obvious by Dabak, Khayrallah, Rafie, Kingston or any conceivable combination thereof.

Dabak describes a package structure 200 having a sync field 202, and ARQ field 204 and a segmented payload field 206. The sync field comprises a preamble field 208 and a

header field 210. Dabak paragraph [0013] clearly states that the preamble 208 aids in the initial symbol timing acquisition, carrier frequency offset estimation and channel estimation by the receiver in a wireless system like a Bluetooth system. The header 210 is used for purposes other than channel estimation, such as providing link layer information. Therefore, Dabak appears to contemplate using only the preamble sequence 208 for channel estimation. That is, channel estimation based on a fixed data portion or field of the data packet.

Dabak further describes retraining an equaliser throughout the segmented payload of the packet structure on the basis of the sync words 406 provided in each segment. In Dabak, although each training determination is similarly based on a fixed data portion, it will be apparent that training and retraining inherently involves two or more separate sequence determinations. Therefore, Dabak does not describe determining a training sequence using one or more variable data portions or fields of said data packet as recited in Claims 1, 20, 23 and 44.

Khayrallah utilizes a method in which channel estimation involves a multi-pass demodulation step. As shown in FIGS. 3 and 4 for example, the operation involves the mode selection 56 providing known symbols to the propagation characterization estimator 32. The estimator 32 estimates propagation response characteristics. These initial estimates are used for the channel tracker 50 and antenna tracker 52. The channel tracker 50 begins tracking the channel from the first symbol (represented as O in FIG. 4) of the synchronization sequence using the initial estimates provided by at least square determination and tracked channel until the last symbol (A) of the synchronization sequence in the training mode. After the training sequence, the mode selector 56 changes to decision directed mode and provides the output of the symbol or sequence estimator 54 to the channel tracker 50 and antenna tracker 52. Thus starting from the first symbol (B) of the information sequence immediately following the tracking sequence, the estimated symbols of the output of the symbol sequence estimator 54

are used for the estimation of the channel response. The channel estimation continues until the last symbol (C) of the first information sequence associated with unencoded symbol information. Thus during the first pass of demodulation of the received slot, all the information portion of the slot, regardless of whether it is unencoded or coded information, is treated as detected rather than known information by publication characterization estimator 32 and mode selector 56. Moreover, on the second pass of demodulation the received slot decoded information portions are processed as known bits. Accordingly, during the second pass, mode selector 56 uses information based on the decoded symbols from the first pass to update the channel tracker 50 and the antenna tracker 52 during the corresponding coded portion of the received slot.

It is also stated that mode selector 56 further provides for selection of a different bandwidth during decoded portions. Accordingly, the channel tracker 50 and antenna tracker 52 may operate a time bandwidth for enhanced tracking ability when processing previously decoded symbol information and at a lower bandwidth to allow reduced sensitivity of the channel tracker and antenna tracker to noise and incorrect symbol decisions during the remaining portion of the information segment of a received slot.

Khayrallah does not, however, describe determining a training sequence using one or more variable portions or fields of said packet as recited in independent Claims 1, 20, 23 and 44. One of ordinary level of skill in the art would appreciate that Khayrallah contemplates using only the preamble sequence of training symbols identified as O to A in FIG. 4. That is, channel estimation based on a fixed data portion or field of the data packet. The subsequent processing of that data does not alter the fact that the preamble O to A in FIG. 4 is a fixed data portion or field. As is the case with Dabak, a disadvantage of such approach is that under certain conditions, the preamble may not be available for channel estimate training.

Nor do Rafie or Kingston correct the deficiencies of Dabak and Khayrallah pointed out above. Rafie teaches several classes or known approaches to equalization including a maximum likelihood sequence or estimator (MLSE). Kingston describes a channel estimator comprising an initialiser to initialise the adapted filter using the first estimated channel response for determining the second estimator channel response (column 12, lines 19, 30 and 51).

It is respectfully submitted that dependent Claims 2-19 and 24-42 are patentable at least for the reasons argued above with regard to the claims from which they depend.

Accordingly, withdrawal of the rejections of Claims 1-20, 23-42 and 44 is respectfully requested and allowance of Claims 1-20, 23-42 and 44 is respectfully requested.

Consequently, for the reasons discussed in detail above no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below-listed telephone number.

Respectfully submitted,

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